Action for Excellence

Excerpts from the Task Force Report

TASK FORCE ON EDUCATION FOR ECONOMIC GROWTH, EDUCATION COMMISSION OF THE STATES—JAMES B. HUNT, JR., CHAIR

For most of our history, we Americans have been in love with change—with newness. Early in the 19th century Alexis de Tocqueville, in *Democracy in America*, described a chance encounter with an American sailor, who explained to the bemused Frenchman why it was unnecessary, in America, to build sailing ships sturdy enough to last for decades. Progress in the art of ship-building is so swift and certain, the sailor said, that any ship, after only a brief time on the seas, is sure to be replaced by a newer, better vessel.

Tocqueville shrewdly sensed that this unlettered sailor, with his ebullient faith in progress, spoke for America. And surely Tocqueville was right: a cheerful belief in change and progress has been a marked trait of Americans through most of our history. We Americans, moreover, have not only believed progress to be inevitable, we have embraced it: for we have taken for granted that our country would always be in the very vanguard of change.

Today, however, our faith in change—and our faith in ourselves as the world's supreme innovators—is being shaken. Japan, West Germany, and other relatively new industrial powers have challenged America's position on the leading edge of change and technical invention. In the 1970s, productivity in manufacturing industries grew nearly four times as fast in Japan, and twice as fast in West Germany and France, as in the United States.

The possiblity that other nations may outstrip us in inventiveness and productivity is suddenly troubling Americans. Communities all over the United States are depressingly familiar now with what the experts call *technological*, or *structural*, unemployment; joblessness that occurs because our workers, our fac-

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Who Are They?

THE NATIONAL TASK FORCE ON EDUCATION FOR ECONOMIC GROWTH comprises a wide range of leaders: governors, legislators, corporate chief executives, state and local school board members, educators, leaders of labor, the scientific community, and many others. They are a diverse and occasionally contentious group, representing various interests and constituencies. But over several months of deliberations, these leaders from many different enterprises have been united by three strong, shared convictions: a conviction that a real emergency is upon us; a conviction that we must *act* now, individually and together; and a passionate, optimistic conviction that action, soon enough and in the right directions, can succeed.

—*Excerpt from the Task Force Report*

Today's definition of basic skills is inadequate for economic leadership in tomorrow's world.

tories and our techniques are suddenly obsolete. To many Americans, technological change today seems a dark and threatening force, rather than a bright confirmation of our national genius. Tocqueville's sailor welcomed change; many of our people today, however, are beginning to fear it.

Yet the conditions that concern us today—swiftly advancing technology, economic competition in a global arena, the sudden obsolescence of skills—will be even more intense tomorrow.

Highly skilled human capital has always been important to our economy. In the future it will be even more important. And in the future that is quickly emerging, not just people in scientific and technical occupations, but virtually all workers, will face new demands. Some of these new demands, in fact, are already clearly visible; in offices all over America, typewriters are being replaced by word processors—devices which increase productivity, but which also require new training and new skills. In the armed forces, sophisticated weapons systems require more sophisticated skills. In shops and warehouses across the country, work that once was unskilled and purely physical—lifting, moving, and hauling—is increasingly performed today by mechanical devices and even more sophisticated systems. The porter's job of yesterday is the work of a lift operator today and will become the work of a computerized conveyor system operator tomorrow.

In one sense, the advance of technology in the workplace makes work easier by reducing physical demands. But inevitably the advance of technology makes other intellectual and psychological demands. Even those inventions that make calculations faster and easier—computers, for example—require a high degree of adaptability.

It is the thesis of this report that our future success as a nation—our national defense, our social stability and well-being and our national prosperity—will depend on our ability to improve education and training for millions of individual citizens. We must begin now, act now, change now, so that in the future our children will be able to meet the demands of a new era that is already upon on.

Broadening the Definition of "Basic Skills"

This new era of advancing technological change and global competition will radically change our concept of *basic skills*—of the minimum necessary skills for a person's economic survival.

This kind of redefinition has happened before. Over the years, our concept of *literacy*, for example, has undergone considerable revision, as technology has advanced in America and as the demand for knowledge has increased in the workplace. In the nation's early days, to be literate meant simply to be able to write one's name. Later, literacy came to mean the ability to read and write. Today, to most of us, basic literacy implies the ability to read, write, and compute—at a rudimentary level to be sure; but at a level higher than was common among unskilled workers a century ago or even 50 years ago.

What is about to happen to today's concept of basic skills?

What we consider the basic skills today can be described fairly simply. In most states and communities that have established minimum competency requirements, "basic skills" are defined in minimal, rudimentary terms, as follows:

- First, the ability to comprehend literally a simple written passage
- Second, the ability to compute with whole numbers
- Third, the mastery of writing mechanics.

When state or local assessment projects test students for minimum competency, it is these minimal skills that are examined. We expect our schools to impart much more than these basic skills; we demand that they impart no less.

If we match these minimal skills to today's spectrum of jobs, we find that:

- *Unskilled jobs* can be performed adequately by people with less than today's basic skills: simple hauling and janitorial work, for example.
- *Basic jobs* require today's basics: employment, for example, as a clerk in a small, noncomputerized store.
- *"Learning-to-learn" jobs* demand that the worker possess not only basic skills, but be capable of acquiring new ones. Most factory and service-industry jobs in America today fall into this category. And it is here—in imparting the skills of analysis and problem solving that constitute "learning-to-learn" skills—that our schools face their greatest need for improvement.
- *Professional jobs* require adaptability—"learning-to-learn" skills—and more sophisticated intellectual skills as well. Professionals, scientific programmers and analysts, and middle-to-upper-level corporate managers are examples.

The advance of technology will greatly affect job opportunities and job requirements. Jobs which offer upward mobility will increasingly be those which require the creative use of technology.

The stiffening demands of advancing technology will almost certainly mean that real opportunity, real chances for upward mobility, will increasingly be reserved for those with "learning-to-learn" skills: not just the ability to read, write and compute at a minimal level, but more complex skills of problem solving, reasoning, conceptualizing, and analyzing. Increasingly, people who have only today's basic skills—or less than today's basics—will be consigned to economic stagnation.

The implications for educational policy, then, are clear: our commitment to democratic values, to free individual choice, and to equality of opportunity forbid us to establish an educational caste system. We cannot deliberately educate some students for tomorrow's more demanding jobs and consign the rest to being left behind. Yet to continue business as usual, to continue educating even a portion of our students only for today's basic skills, runs the risk of doing precisely that. As the economist Lester

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Thurow has put it, our economy "is not going to thrive unless there is a major effort to upgrade the American labor force from top to bottom."

So we face two imperatives:

First, we must upgrade considerably our definition of basic skills. Beginning *now*, our definition of basic skills must expand to include more of the skills that will be demanded in tomorrow's technologically sophisticated workplace. In the future, for example, minimal basic competency may well include skills considerably broader than those we consider basic today:

- Competency in reading, for example, may well include not only the ability to literally decipher a simple written passage, but other skills as well: the ability to analyze and summarize, for example, and the ability to interpret passages inferentially as well as literally.
- Basic, minimal mathematical competency may well include, in the future, not just the ability to compute with whole numbers, but also more complicated computing with problem-solving skills: the ability to use arithmetic computations in solving practical problems.
- Competency in writing may well comprise not just the ability to write a sentence or a paragraph, but the ability to gather and organize information coherently.

Second, beyond reworking our definition of basic skills, we must mobilize our educational system to teach those new skills. We must launch an effort to transmit to all the nation's students higher levels of the skills required to function in tomorrow's workplace: levels sufficiently high to afford them choice and opportunity in tomorrow's economy.

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Can we educate future generations sufficiently well to assure steadily increasing productivity and economic growth?

It is the conviction of this Task Force that we can—but that we are not now doing so. We are not doing so because we face some serious deficiencies in our educational system and because we have reached no clear consensus about what must be done to improve education.

Problems in Student Achievement

The National Assessment of Educational Progress, which periodically surveys the knowledge and skills of high school students, found in one of its recent surveys that:

- Thirteen percent of our 17-year-old students could not perform reading tasks considered to be minimal for functional literacy.
- Twenty-eight percent could not answer questions testing their literal comprehension of what they read.
- Fifty-three percent could not write a letter correcting a billing error.
- Only 21 percent could write a persuasive statement in 1974. By 1979, the percentage showing adequate competency on this test had dropped to 15 percent.
- When the assessment tested the students who had dropped out of school before reaching age 17, the percentages of poor performers were even higher.
- According to the U.S. Office of Education, 40 to 50 percent of all urban students have serious reading problems. Since minority students are concentrated in urban schools, and since it is estimated that by 1990 more than 40 percent of urban students nationwide will be members of minorities, we face a special challenge here: to improve educational results among minority students so that they can increase their representation in the high-skill fields that will provide upward mobility in the future.

Educational deficits in the specific fields most closely related to technological progress, mathematics and science, are especially disturbing. The United States today can still lay claim, narrowly, to technological leadership in the world—a fact which reflects our country's abundant supply of skilled scientists, technologists, engineers, and technicians.

But our technological supremacy has eroded as other nations have expanded their own capacities. Our ability to compete is threatened, for example, by a shortage of skilled engineers and scientists—and, perhaps more seriously, by a lack of general scientific and mathematical literacy: forms of literacy which will be essential if our citizens are to support a technologically advancing economy.

The small percentage of students in the United States who are planning to enter scientific and technical professions has remained roughly constant in recent years, and so have their achievement levels. But most students today end their encounters with science and mathematics early in high school. This declining explosure to technical subjects is a serious problem which threatens to become more serious as American workers face increasing technological demands:

- Between 1960 and 1977, the proportion of public high school students enrolled in science and mathematics courses declined; the proportion of students enrolled in science dropped from 60 to 48 percent.
- Despite recent increases in mathematics and computer science enrollments, half of all high school graduates take no mathematics or science beyond the tenth grade.
- Remedial mathematics enrollments at four-year colleges increased 72 percent between 1975 and 1980, while the number of students going to college increased only 7 percent in the same period—a fact which suggests the inadequacy of high school mathematics and science preparation.

Our educational system, to be sure, has scored some important successes over the past two decades. According to the findings of the National Assessment of Educational Progress, there were improvements in basic skills among the lowest-performing 25 percent of students. Black students as a group, and many other historically disadvantaged students, showed actual improvements in their performance of basic tests of reading, writing, and computing—which suggests that our efforts over the past two decades to improve educational opportunities for these young people have had real impact.

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The fact remains, however, that overall performance in higher-order skills—inference, analysis, interpretation, and problem-solving skills—declined in the seventies. And the largest drop-offs in achievement occurred in the most able students. This suggests that we may be regressing from the standard of literacy which was considered adequate 15 years ago at precisely the moment when global economic competition and technological change in the workplace are challenging us to upgrade our standards.

These educational deficits are hardly surprising when we reflect that among the world's industrialized nations, the United States appears to expect the least of its youth in terms of academic effort and achievement:

- While only 38 percent of American high school students take a one-year course in chemistry, all students in the Soviet Union complete four years of chemistry, including a full year of organic chemistry.
- Approximately 95 percent of Japanese teenagers now graduate from high school, compared with 74 percent in the United States.
- In most of the industrialized countries, the school year is considerably longer than in the United States—often 240 days or longer, compared to an average of 180 days in our country. School days are longer, exposure to core academic subjects is greater, and time-on-task exceeds that in United States schools. As a result, after 12 years of schooling, students in other advanced nations may have the equivalent of four full years more schooling than American high school graduates—in a curriculum that is more demanding than the typical American school's course offerings.

Needed: Curriculum Renewal

More than a decade has passed since National Science Foundation funds—and the expertise of university scientists, mathematicians, and engineers—were used to revitalize the nation's science curriculum. The teaching materials developed then are now increasingly obsolete; they do not take advantage of teaching with technology, for example, or rapid progress in electronics.

The original NSF materials were directed primarily toward the most able students. The challenge remains to interest more students—both those who will pursue scientific careers and the general student—in taking science and mathematics courses. Ten years ago, just over half the nation's high schools offered a course in physics—and only one student in every four or five took the course. As bad as this situation was, it has recently become worse: today only one in every five or six high school students takes physics.

We need a renewed curriculum. But we must take care to develop teaching materials aimed at attracting, motivating, and establishing competency in every ability group. A concept of curriculum improvement that focuses on cognitive goals but ignores motivation is destined to fail.

Another priority related to curriculum improvement must be to increase instructional time in key academic subjects:

- The typical elementary school week comprises 25 instructional hours. During these 25 hours, only one hour of science is taught in many schools across the nation—and less than four hours of arithmetic.
- In most industrialized nations by contrast, as we have mentioned, the amount of classroom time devoted to core academic subjects is several times greater than the time spent in our schools. Students in these countries are introduced earlier than our young people to reading, mathematics, and science; they attend school longer each day and spend more days in school each year. Need we be surprised, then, that a gap is opening between achievement levels in the United States and those in Japan and Europe?

In many American schools, moreover, laboratories and instructional equipment are obsolete or unavailable, and good textbooks are in short supply. Sixty percent of science teachers have had their budgets for supplies and equipment cut in recent years at a time when sophisticated equipment is surely needed in our schools. And the proportion of educational budgets devoted to textbooks has been cut in half in the last 17 years—the same period in which test scores measuring student achievement have also fallen.

Finally, most American schools have only scratched the surface when it comes to integrating modern technology into instructional programs. The use of computers in schools is increasing; some states have launched effective leadership efforts in computer-assisted education. In a few states, videotape and other technical innovations are used creatively to extend the reach and effectiveness of teachers. But in most places, school systems have shown only spotty success in using technology to augment textbooks and other teaching materials or to extend the instructional reach of teachers.□

Recommendations of the Task Force

ACTION RECOMMENDATION 1
Develop—and put into effect as promptly as possible—state plans for improving education in the public schools from kindergarten through grade 12.

- Led by the governor, each state should develop a state plan for education and economic growth.
- Each governor should appoint a broadly inclusive state task force on education for economic growth.
- Each school district should develop its own plan.

ACTION RECOMMENDATION 2
Create broader and more effective partnerships for improving education in the states and communities of the nation.

- Business leaders, labor leaders, and members of the profession should become more active in education.
- Business leaders should establish partnerships with schools.
- Governors, legislators, chief state school officers, state and local boards of education, and leaders in higher education should establish partnerships of their own.

ACTION RECOMMENDATION 3
Marshal the resources which are essential for improving the public schools.

- School systems should enrich academic programs and improve management to make the best possible use of resources.
- States and communities should invest more financial human and institutional resources in education.
- The federal government should continue to support education.

ACTION RECOMMENDATION 4
Express a new and higher regard for teachers.

- States and school districts—with full participation by teachers—should dramatically improve methods for recruiting, training, and paying teachers.
- States should create "career ladders" for teachers.
- States, communities, the media, and the business community should devise new ways to honor teachers.

ACTION RECOMMENDATION 5
Make the academic experience more intense and more productive.

- States and school systems should establish firm, explicit, and demanding requirements concerning discipline, attendance, homework, grades, and other essentials of effective schooling.
- States and school systems should strengthen the public school curriculum.
- States should increase the duration and the intensity of academic learning.

ACTION RECOMMENDATION 6
Provide quality assurance in education.

- Boards of education and higher education should cooperate with teachers and administrators on systems for measuring the effectiveness of teachers and rewarding outstanding performance.
- States, with full cooperation by teachers, should improve the process for certifying teachers and administrators and make it possible for qualified outsiders to serve in the schools.
- States should examine and tighten procedures for deciding which teachers to retain and which to dismiss.
- Student progress should be measured through periodic tests of general achievement and specific skills; promotion from grade to grade should be based on mastery, not age.
- States and communites should identify clearly the skills they expect the schools to impart.
- Colleges and universities should raise their entrance requirements.

ACTION RECOMMENDATION 7
Improve leadership and management in the schools.

- Principals should be squarely in charge of educational quality.
- Pay for principals should relate to responsibilities and effectiveness.
- States should set higher standards for recruiting, training, and monitoring the performance of principals.
- Schools should use more effective management techniques.

ACTION RECOMMENDATION 8
Serve better those students who are now unserved or underserved.

- States and school districts should increase the participation of young women and minorities in courses where they are underrepresented.
- States should continue to develop equitable finance measures to insure that education resources are distributed fairly.
- States and school systems should identify and challenge academically gifted students.
- States, school systems, principals, teachers, and parents should work to reduce student absences and failures to finish school.
- States and school systems should specifically include handicapped students in programs for education and economic growth.

THE OUTLOOK: CAN WE SUCCEED?
We can improve public education across the nation. Our resources are abundant. Our commitment to a broadly inclusive educational system has been demonstrated by the impressive reforms of the 1970s. And the substantial progress states and communities have already made in improving the quality of education is proof positive that we can indeed change education in deep and lasting ways. But the stakes are high and our ultimate success will depend in large measure on our willingness to act. No task facing our nation matters more than to launch—now—the action plan set forth here.□